

# PATENT ABSTRACTS OF JAPAN

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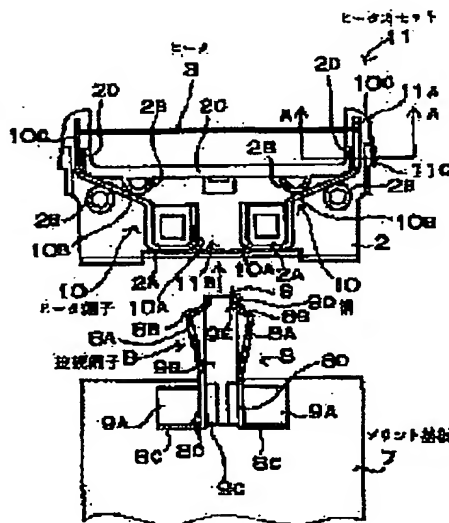
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## (54) BODY HAIR TREATMENT TOOL

### (57)Abstract

**PROBLEM TO BE SOLVED:** To mount and demount a heater cassette simply, easily and smoothly, and detachably joint the heater cassette to a tool body in a proper way under the application of a very simple structure.

**SOLUTION:** A body hair treatment tool is formed out of a heater cassette 1 having a heater 3, and a tool body for detachably mounting the heater cassette 11. Also, the heater cassette 11 has an end knobs 11A at both ends in such a state as exposed to both ends of the tool body and as well has a connection aperture 11B for connection to the tool body. The tool body has an insertion rod 9 to be inserted in the connection aperture 11B of the heater cassette 11, and the heater cassette 11 is detachably provided between the combs of the tool body by holding both the knobs 11A. Also, the heater cassette 11 is mounted on the tool body with the insertion rod 9 of the tool body passed through the connection aperture 11B of the heater cassette 11, and jointed to the tool body electrically as well as mechanically.



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CLAIMS

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[Claim(s)]

[Claim 1] The hair processing implement which is a hair processing implement equipped with the body (1) which is containing and carrying out the power source which heats a heater (3) while being equipped with the heater cassette (11) which has the heater (3) generating heat, and this heater cassette (11) free [ description ], if it energizes, and has all the following configurations.

- (a) A heater cassette (11) has a both-ends knob (11A) to those both ends, and this both-ends knob (11A) is expressed to both ends from between the combs (6) of the pair prepared in the body (1).
- (b) A heater cassette (11) has connection opening (11B) for connecting with a body (1).
- (c) While being located in the central part of a heater (3), opening of the connection opening (11B) is carried out caudad.
- (d) The heater terminal (10) of a pair connected to the inside which connection opening (11B) counters to the both ends of a heater (3) is arranged.
- (e) A body (1) has the insertion rod (9) which the configuration inserted in connection opening (11B) of a heater cassette (11) comes to fabricate.
- (f) The insertion rod (9) is fabricated with the insulating material.
- (g) The connection terminal (8) by which electrical connection is carried out to the heater terminal (10) currently arranged by the opposed face of connection opening (11B) is arranged in both sides of an insertion rod (9).
- (h) A heater cassette (11) holds a both-ends knob (11A), and it is equipped with it in the direction which intersects perpendicularly to a heater (3) between the combs (6) of a body (1) free [ description ].
- (i) A heater cassette (11) inserts the insertion rod (9) of a body (1) in connection opening (11B) of a heater cassette (11), a body (1) is equipped with it, it is in this condition, and it is constituted and it becomes so that it may be connected also electrically, while a heater cassette (11) is mechanically connected with a body (1).

[Claim 2] The stop taper section which makes large gradually spacing between the connection terminals (8) of a pair at the connection terminal (8) which is an elastic metal plate, and its point (8A). It is connected at the tip rather than this stop taper section (8A), and has the insertion taper section (8B) which narrows spacing of the connection terminal (8) of a pair gradually. The boundary of the stop taper section (8A) and the insertion taper section (8B) if it has projected elastically from the front face of an insertion rod (9) and an insertion rod (9) is inserted in connection opening (11B) of a heater cassette (11) The hair processing implement indicated by claim 1 as for which is constituted and the stop taper section (8) which becomes large [ spacing ] gradually becomes so that may be elastically pressed by the inside of a heater terminal (10).

[Claim 3] Connection terminal (8) For a connection terminal (8), in the mold goods of plastics, an insertion rod (9) is an elastic metal plate, and an insertion rod (9) is the hair processing implement indicated by claim 1 which it comes to fix to the printed circuit board (7) which minds and is built in a body (1).

[Claim 4] The hair processing implement indicated by claim 3 by which an insertion rod (9) has in a point the slot (9D) which it shows to a connection terminal (8) tip, it is put into it by the tip fang furrow (9D) of a connection terminal (8), and a connection terminal (8) is connected with the orientation of an insertion rod (9).

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the hair processing implement which burns off the useless hair of a body surface at a heater.

[0002]

[Description of the Prior Art] The hair processing implement which burns off the useless hair of a body surface at a heater is developed. A hair processing implement is energized and heated at the heater which is a nichrome wire. The heated heater burns off the hair which contacts. Since a heater is dangerous when it contacts the skin directly, a comb is arranged in the both sides. The hair processing implement of this structure burns off at a heater the hair which passes a comb and is guided inside.

[0003] It is necessary to make the hair processing implement of this structure into the structure where the foreign matter adhering to a heater is finely removable. In order to realize this, the hair processing implement made into the structure which can carry out desorption of the comb arranged in the both sides of a heater is developed (JP,8-289814,A). Although the hair processing implement of this structure can remove the foreign matter adhering to a heater, when a heater is turned off, it has an easily unexchangeable fault. This fault makes a heater build in a heater cassette, and a body is equipped and it can be canceled so that the desorption of this heater cassette can be carried out. The hair processing implement of this structure removes a heater cassette, can remove the foreign matter adhering to a heater, further, exchanges a heater cassette and can exchange the heater turned off easily [ a new thing ].

[0004] The hair processing implement which equips a body with a heater cassette free [ desorption ] is indicated by JP,4-37521,Y and the utility model registration No. 3006125 official report. The hair processing implement indicated by official reports, such as this, builds in the heater cassette 11 which can pull out and carry out desorption to a longitudinal direction, as shown in drawing 1 and drawing 2. The heater cassette 11 is in the inserted condition, and in order to energize at a heater 3, it is making the heater terminal 10 project from a tip.

[0005]

[Problem(s) to be Solved by the Invention] As mentioned above, the hair processing implement which carries out desorption of the heater cassette 11 to a longitudinal direction needs the device for arranging the heater cassette 11 in the orientation of a body 1. As shown in drawing 3, the heater cassette 11 is put into the slot which formed the protruding line 12 in both sides, and formed this protruding line 12 in the body 1, and is arranging the heater cassette 11 in an orientation. The hair waste burned off at the heater invades between a protruding line and a slot, and it may stop being able to carry out desorption of it smoothly as for the heater cassette of this structure. Burnt hair waste invades between a protruding line and a slot, and especially the hair processing implement that burns off and cuts hair has the fault to which it becomes difficult to make it slide smoothly. Furthermore, since the slot on which the protruding line of a heater cassette is slid is arranged in the inner by the inside of the comb formed face to face, it is difficult to clean a slot finely and the hair waste which collected here makes desorption of a heater cassette difficult.

[0006] Especially the hair processing implement of this structure has the fault which the heater cassette which cannot slide smoothly stops being able to draw out very easily. That is because the small knob formed at the tip of a heater cassette is gathered and it draws out from a body. This knob is difficult for enlarging from an appearance design. It is because an appearance design will worsen if too large. A small knob cannot be held strongly, and cannot draw out a heater cassette forcibly, but makes difficult desorption of the heater cassette which cannot slide smoothly. Furthermore, the trouble is that the heater cassette which stopped being able to carry out desorption has the fault to which hair waste accumulates gradually between a protruding line and a slot, and desorption becomes difficult further.

[0007] This invention is developed for the purpose of solving this fault further. About a heater cassette, the important purpose of this invention is to offer [ easy and ] the hair processing implement which can connect a heater cassette with a body free [ desorption ] certainly with very easy structure while being able to carry out desorption easily and smoothly.

[0008]

[Means for Solving the Problem] The hair processing implement of claim 1 of this invention is equipped with the heater cassette 11 which has the heater 3 which will generate heat if it energizes, and the body 1 which comes to equip this heater cassette 11 free [ desorption ]. The body 1 contains the power source which heats a heater 3. Furthermore, the

hair processing implement of this invention is equipped with the following peculiar configuration.

- (a) The heater cassette 11 holds the both ends, and it has both-ends knob 11A to both ends so that desorption can be carried out in the direction which intersects perpendicularly to a heater 3. From between the combs 6 of the pair prepared in the body 1, both-ends knob 11A can be expressed to both ends, and can be held now.
- (b) The heater cassette 11 has connection opening 11B for connecting with a body 1 free [desorption].
- (c) While being located in the central part of a heater 3, opening of the connection opening 11B is carried out caudad.
- (d) The heater terminal 10 of a pair connected to the inside which connection opening 11B counters to the both ends of a heater 3 is arranged.
- (e) A body 1 has the insertion rod 9 which the configuration inserted in connection opening 11B of the heater cassette 11 comes to fabricate.
- (f) The insertion rod 9 is fabricated with the insulating material so that the connection terminal 8 can be insulated and arranged in an opposed face.
- (g) The connection terminal 8 by which electrical connection is carried out to the heater terminal 10 currently arranged by the opposed face of connection opening 11B is arranged in the both sides of the insertion rod 9.
- (h) The heater cassette 11 holds both-ends knob 11A, and it is equipped with it in the direction which intersects perpendicularly to a heater 3 between the combs 6 of a body 1 free [desorption].
- (i) The heater cassette 11 inserts the insertion rod 9 of a body 1 in connection opening 11B of the heater cassette 11, and a body 1 is equipped with it, it is in this condition, and it is constituted so that it may be connected also electrically, while the heater cassette 11 is mechanically connected with a body 1.

[0009] The hair processing implement of claim 2 of this invention is manufacturing the connection terminal 8 with the elastic metal plate. This connection terminal 8 is connected with that point at the tip rather than stop taper section 8A which makes large gradually spacing between the connection terminals 8 of a pair, and this stop taper section 8A, and it has insertion taper section 8B which narrows spacing of the connection terminal 8 of a pair gradually. The boundary of stop taper section 8A and insertion taper section 8B is elastically projected from the front face of the insertion rod 9. If the insertion rod 9 is inserted in connection opening 11B of the heater cassette 11, stop taper section 8A which becomes large [spacing] gradually will be elastically pressed by the inside of a heater terminal 10. The hair processing implement of this structure is stopped by stop taper section 8A which inclines in the direction from which the heater terminal 10 of the heater cassette 11 cannot escape easily.

[0010] The hair processing implement of claim 3 of this invention uses the insertion rod 9 as the mold goods of plastics, uses the connection terminal 8 as an elastic metal plate, and is fixing it to the printed circuit board 7 in which the insertion rod 9 is contained by the body 1 through the connection terminal 8.

[0011] The hair processing implement of claim 4 of this invention has prepared slot 9D which shows the point of the insertion rod 9 to the tip of the connection terminal 8. The tip of the connection terminal 8 was put into slot 9D, and the connection terminal 8 is connected with the orientation of the insertion rod 9.

[0012]

[Embodiment of the Invention] Hereafter, the example of this invention is explained based on a drawing. However, the example shown below does not illustrate the hair processing implement for materializing the technical thought of this invention, and this invention does not specify a hair processing implement as the following.

[0013] Furthermore, this specification has appended the number corresponding to the member shown in an example to the member shown in "the column of a claim", and "the column of The means for solving a technical problem" so that it may be easy to understand a claim. However, there is never nothing what specifies the member shown in a claim as the member of an example.

[0014] The hair processing implement shown in drawing 4 thru/or drawing 7 has equipped with the heater cassette 11 at the tip of a body 1. The body 1 contains the cell 4 which heats a heater 3, and the timer which restricts the heating time of a heater 3 in the interior of a case. Furthermore, a body 1 forms the switch 5 which controls energization of a heater 3, and is making the exterior of a case express the knob of this switch 5.

[0015] The heater cassette 11 contains the heater 3 and the heater terminal 10 in the heater case 2 made from plastics. The heater case 2 is fabricated with plastics by the configuration divided into two, as shown in the decomposition perspective view of drawing 8. After making the heater terminal 10 which connects a heater 3 to the left-hand side heater case 2 in drawing build in, the heater cassette 11 connects the right-hand side heater case 2, and is assembled.

[0016] The heater cassette 11 holds the both ends, and as the arrow head of drawing 4 and drawing 5 shows, it has both-ends knob 11A to both ends so that desorption can be carried out in the direction which intersects perpendicularly to a heater 3. Both-ends knob 11A is in the condition of equipping a body 1 with the heater cassette 11, and is expressed outside from between the combs 6 of a pair. The heater cassette 11 shown in drawing is fabricating protruding line 11C of four trains on the front face of both-ends knob 11A, in order to prevent slipping when carrying out desorption.

[0017] Furthermore, in order to carry out desorption in the direction shown by the arrow head of drawing 4 and drawing 5 and to connect with a body 1, the heater cassette 11 is located in the central part of a heater 3, and is carrying out opening of the connection opening 11B which carries out opening caudad. As shown in drawing 8 and drawing 9, the heater terminal 10 of a pair connected to the both ends of a heater 3 is arranged in the inside which connection opening 11B counters.

[0018] The heater terminal 10 has connected the heater 3 of a thin nichrome wire with the upper limit. The heater 3 has twisted and connected the both ends with the heater terminal 10. A heater terminal 10 connects a heater 3 at a tip, and is wearing \*\*\*\* to the orientation of the heater case 2 in itself. The heater terminal 10 shown in drawing is used also [ members / both / which prevents the terminal for connection energized at a heater 3, and the sag of a heater 3 / hauling ]. Therefore, a heater terminal 10 is manufactured by spring material which can carry out elastic deformation, such as a flat spring and a spring line. A spring line can also be used for it although the heater terminal 10 shown in drawing is a flat spring.

[0019] The heater terminal 10 consists of back end loop-formation section 10A of the lower limit bent by the configuration along the front face of prism 2A really fabricated by the heater case 2, middle extension 10B connected with this back end loop-formation section 10A, and heater connection section 10C which is connected at the tip of this middle extension 10B, and connects a heater 3. A heater terminal 10 inserts back end loop-formation section 10A in the outside of prism 2A established in the heater case 2, and is arranged by the inside which connection opening 11B counters. The heater cassette 11 shown in drawing is with prism 2A really fabricated by the heater case 2 and the side face of the heater case 2, and forms connection opening 11B for connecting with a body 1. Middle extension 10B of a heater terminal 10 was inserted between support column 2Bs really fabricated by the heater case 2, and has equipped the orientation of the heater case 2 with the heater terminal 10.

[0020] Furthermore, the heater case 2 inserted the corner section of middle extension 10B of a heater terminal 10, and heater connection section 10C in the outside of septum 2C really fabricated by the heater case 2, and has equipped the orientation with it. Septum 2C makes the both ends project up, and is arranging heater connection section 10C in the outside of lobe 2D. The lateral surface of lobe 2D extends a heater terminal 10 on both sides, pulls a heater 3, and equips the heater case 2 with it in the condition.

[0021] The lateral surface of lobe 2D prepared in the both sides of septum 2C is inclined plane 2E, as shown in the sectional view of drawing 10. It is for pulling a heater 3 and considering as a condition, when equipping the heater case 2 with the heater terminal 10 which has connected the heater 3, as the arrow head of drawing shows. Inclined plane 2E is inclined plane 2E which makes large tip spacing of two heater connection section 10C. If the heater terminal 10 with which it is equipped here is put in another way so that it may energize in the direction of hauling of a heater 3. If heater connection section 10C of a heater terminal 10 is inserted along with inclined plane 2E, a heater 3 will be pulled and the heater case 2 will be equipped. A part separates from inclined plane 2E, and heater connection section 10C of the heater terminal 10 with which inclined plane 2E is equipped can do a clearance. Inside, wedge projection 2F are really fabricated to the inside of one of the two's heater case 2, and this clearance can be blocked, as shown in the sectional view of drawing 10. Wedge projection 2F are fabricated by the configuration pressed fit in the clearance between inclined plane 2E and heater connection section 10C.

[0022] The heater case 2 shown in drawing is assembled as follows.

\*\* Twist and connect the both ends of a heater 3 with heater connection section 10C in the condition of not equipping the heater case 2 with a heater terminal 10. Beforehand, a heater 3 will be connected with a heater terminal 10 by the die length not curtaining, if the heater case 2 is equipped with a heater terminal 10.

[0023] \*\* Equip one heater case 2 with the heater terminal 10 which connected the heater 3. A heater terminal 10 puts middle extension 10B into the outside of prism 2A really fabricated by the heater case 2 in back end loop-formation section 10A, puts heater connection section 10C into the outside of inclined plane 2E of septum 2C both sides between support column 2Bs, and the orientation of the heater case 2 is equipped with it. In this condition, a heater terminal 10 is in the condition which pulls a heater 3 in the shape of a straight line, and the orientation of the heater case 2 is equipped with it.

[0024] \*\* Connect other heater cases 2 with the heater case 2 where it has equipped with the heater terminal 10, and blockade opening of the heater case 2.

[0025] A body 1 is a case made from plastics, was projected at the tip and has formed the comb 6 of a pair. The comb 6 is located and arranged in the both sides of a heater 3. Between combs 6, the attachment section which equips with the heater cassette 11 free [ description ] is prepared. The body 1 contains the printed circuit board 7 in the part of an upper half, as shown in the front view which opened the case of drawing 7.

[0026] A printed circuit board 7 fixes the insertion rod 9 which connects the heater cassette 11 so that it may project from upper limit, and it is arranging the connection terminal 8 in the both sides of this insertion rod 9. The insertion rod 9 is fixed to a printed circuit board 7 through the connection terminal 8. Furthermore, the printed circuit board 7 has equipped also with the timer which restricts the resistance welding time of a heater 3, and the switch 5 for energizing at a heater 3.

[0027] The connection terminal 8 is the metal plate which carries out elastic deformation, and it solders to a printed circuit board 7, and is fixed to it, and it is fixing the insertion rod 9 made from plastics to a printed circuit board 7. As shown in the perspective view of drawing 11, the connection terminal 8 consists of stationary-plate 8C fixed to a printed circuit board 7, and arm 8D connected with a heater terminal 10, and makes the whole configuration the shape of L character. Stationary-plate 8C prepares lead projection 8E up and down, it inserts lead projection 8E in a printed circuit board 7, carries out soldering, and is fixed.

[0028] Arm 8D of the connection terminal 8 is taken as the configuration which bends a point to Yamagata which projects

outside, as shown in drawing 11 and drawing 12. Arm 8D of the connection terminal 8 of this configuration is connected at the tip rather than stop taper section 8A which makes large gradually spacing between the connection terminals 8 of a pair, and this stop taper section 8A, and consists of insertion taper section 8B which narrows spacing of the connection terminal 8 of a pair gradually. The boundary of stop taper section 8A and insertion taper section 8B is elastically projected from the front face of the insertion rod 9.

[0029] When inserting the insertion rod 9 in connection opening 11B of the heater cassette 11, the connection terminal 8 of this structure presses elastically stop taper section 8A which becomes large [ spacing ] gradually to the inside of a heater 3, and it can connect it so that it may not escape from the heater cassette 11.

[0030] The insertion rod 9 is fabricated with plastics by the configuration connected with a printed circuit board 7 through the connection terminal 8. The insertion rod 9 is equipped with corner pillar section 9A located in the corner of the L character-like connection terminal 8, and rod section 9B located between the connection terminals 8 of a pair. Corner pillar section 9A which detaches mutually and is arranged is connected by bottom plate 9C, rod section 9B is also connected with this bottom plate 9C, and the whole is really fabricated with plastics. The L character-like connection terminal 8 is put into the inside of corner pillar section 9A, and the outside of rod section 9B, and the connection terminal 8 is connected with the insertion rod 9.

[0031] Furthermore, rod section 9B has prepared slot 9D which puts in the tip of the connection terminal 8 at the tip. Slot 9D is carrying out opening of the slit 9E to the bottom. In order to put the connection terminal 8 into slot 9D of this rod section 9B, width of face of insertion taper section 8B at a tip was made narrower than the width of face of slot 9D, and projection 8F which project on both sides are further prepared in the tip edge. It is put in by insertion taper section 8B fang furrow 9D, it is put into projection 8F of a tip by slit 9E, and the connection terminal 8 is connected in the condition of not separating into the insertion rod 9. The insertion rod 9 of this structure fixes the connection terminal 8 to a printed circuit board 7, and it is connected so that a location gap may not be carried out certainly.

[0032] If a body 1 is equipped with the heater cassette 11, electrical connection of the heater terminal 10 of the heater cassette 11 will be carried out to the connection terminal 8 fixed to the printed circuit board 7 built in the case of a body. Furthermore, the connection terminal 8 is inserted between the heater terminals 10 of the heater cassette 11, and connects the heater cassette 11 with a body 1 mechanically. Especially the connection terminal 8 shown in drawing is manufactured with the elastic metal plate which carries out elastic deformation, presses this elastically to the inside of a heater terminal 10, and it connects it so that it may not escape from the heater cassette 11.

[0033] Furthermore, the heater cassette 11 shown in drawing is in the condition with which the body 1 was equipped, and in order to carry out moderation \*\*\*\*, it is making elastic projection 21 project on both sides of the lower limit section of the heater case 2. It is put into this elastic projection 21 by connection crevice 1A prepared in body 1 case, and it connects the heater cassette 11 with an orientation in the condition of being moderate.

[0034]

[Effect of the Invention] The hair processing implement of this invention has easy and the features which can carry out desorption to a body easily and smoothly in a heater cassette. Furthermore, there are the features which can connect a heater cassette free [ desorption ] on a body certainly with very easy structure. It is because a both-ends knob is formed in the both ends of a heater cassette, the both ends of a heater cassette are held with a both-ends knob and the desorption of the heater cassette can be carried out in the direction which intersects perpendicularly to a heater while connecting mechanically with a body a heater terminal for the hair processing implement of this invention to energize at the heater built in a heater cassette, the connection terminal prepared in the body, and a heater cassette.

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**DESCRIPTION OF DRAWINGS**

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**[Brief Description of the Drawings]**

- [Drawing 1] The front view of the conventional hair processing implement
- [Drawing 2] The expanded sectional view of the hair processing implement shown in drawing 1
- [Drawing 3] The perspective view of the heater cassette of the hair processing implement shown in drawing 1
- [Drawing 4] The front view of the hair processing implement of the example of this invention
- [Drawing 5] The side elevation of the hair processing implement shown in drawing 4
- [Drawing 6] The top view of the hair processing implement shown in drawing 4
- [Drawing 7] The front view showing the condition of having opened the case of the hair processing implement shown in drawing 4
- [Drawing 8] The decomposition perspective view showing the condition of having opened the heater cassette of the hair processing implement shown in drawing 4
- [Drawing 9] The top view showing the condition of inserting an insertion rod to the heater cassette shown in drawing 8
- [Drawing 10] The A-A line sectional view of the heater cassette shown in drawing 9
- [Drawing 11] The decomposition perspective view showing the condition of connecting a connection terminal and an insertion rod with a printed circuit board
- [Drawing 12] The expansion perspective view showing the point of an insertion rod, and the joining segment of a connection terminal

**[Description of Notations]**

- 1 — Body 1A — Connection crevice
- 2 — Heater case 2A — Prism 2B — Support column
- 2C — Septum 2D — Lobe
- 2E — Inclined plane 2F — Wedge projection
- 2I — Elastic projection
- 3 — Heater
- 4 — Cell
- 5 — Switch
- 6 — Comb
- 7 — Printed circuit board
- 8 — Connection terminal 8A — Stop taper section 8B — Insertion taper section
- 8C — Stationary plate 8D — Arm
- 8E — Lead projection 8F — Projection
- 9 — Insertion rod 9A — Corner pillar section 9B — Rod section
- 9C — Bottom plate 9D — Slot
- 9E — Slit
- 10 — Heater terminal 10A — Back end loop-formation section 10B — Middle extension
- 10C — Heater connection section
- 11 — Heater cassette 11A — Both-ends knob 11B — Connection opening
- 11C — Protruding line
- 12 — Protruding line

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